

1 I claim:

2 1. Spring mechanisms for trailer ramp doors, adapted to  
3 be completely enclosed in slots formed in rectangular  
4 tubular side members of a trailer rear entrance frame,  
5 comprising:

6 a pair of springs, each having a top end and a bottom  
7 end;

8 means for securely attaching each said top end  
9 separately inside each slot formed in each of two side  
10 members of a trailer rear entrance frame, and means for  
11 securely attaching each said bottom end to the inner  
12 surface of each of two flange members, each extending  
13 outwardly from each of two side members of a ramp door  
14 frame; whereby closing a trailer ramp door inserts each of  
15 said springs into each of said slots while each of said  
16 flange members completely encloses each of said springs in  
17 each of said slots.

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19 2. Spring mechanisms as defined in Claim 1, in which  
20 said means for securely attaching each said top end  
21 comprises:

22 a pair of yoke members each of which securely holds  
23 each of said top ends of said springs, each of said yoke  
24 members being inserted into one of said slots and securely  
25 attached to the inner surface of one of said side members  
26 of said tubular rectangular trailer rear entrance frame.

1        3. Spring mechanisms as defined in Claim 1, in which  
2 said means for securely attaching each said bottom end  
3 comprises:

4        a pair of yoke members each of which securely holds one  
5 of said bottom ends of said springs, each of said yoke  
6 members being securely attached at its bottom to the inner  
7 surface of one of said flange members.

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9        4. A spring mechanism for a trailer ramp door, adapted  
10 to be completely enclosed in a slot formed in a rectangular  
11 tubular side member of a trailer rear entrance frame,  
12 comprising:

13        a spring having a top end and a bottom end;  
14        means for securely attaching said top end inside said  
15 slot formed in a side member of a trailer rear entrance  
16 frame, and means for securely attaching said bottom end to  
17 the inner surface of a flange member extending outwardly  
18 from a side member of a ramp door frame; whereby closing a  
19 trailer ramp door results in inserting said spring into  
20 said slot and said flange member completely encloses said  
21 spring in said slot.

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23        5. A spring mechanism as defined in Claim 4, in which  
24 said means for securely attaching said top end comprises:  
25        a yoke member which securely holds said top end of said  
26 spring, said yoke member being inserted into said slot and  
27 securely attached to the inner surface of said side member  
28 of said tubular rectangular trailer rear entrance frame.

1        6. A spring mechanism as defined in Claim 4, in which  
2 said means for securely attaching said bottom end  
3 comprises:

4        a yoke member which securely holds said bottom end of  
5 said spring, said yoke member being securely attached at  
6 its bottom to said inner surface of said flange member.  
7

8        7. A spring mechanism for a trailer ramp door, adapted  
9 to be completely enclosed when said trailer ramp door is  
10 closed, comprising:

11        a spring having a top end and a bottom end;

12        a longitudinal flange member extending along a side of  
13 a trailer ramp frame and affixed thereto;

14        means for securely attaching the bottom end of said  
15 spring to the inner surface of said longitudinal flange  
16 member;

17        a longitudinal opening located at the outer surface of  
18 a side member of a tubular rectangular trailer rear  
19 entrance frame, said opening formed to receive the entire  
20 length of said spring and formed to be closed by said  
21 longitudinal flange member when said trailer ramp door is  
22 closed;

23        means for securely attaching the top end of said spring  
24 through said longitudinal opening to the inner surface of  
25 said side member; whereby closing said trailer ramp door  
26 completely encloses said spring.  
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1        8. A spring mechanism as defined in claim 7, in which  
2 said means for securely attaching said bottom end of said  
3 spring comprises:

4        a yoke assembly securely holding said bottom end of  
5 said spring, said yoke assembly being securely attached at  
6 its bottom to said inner surface of said longitudinal  
7 flange member.

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9        9. A spring mechanism as defined in claim 7, in which  
10 said means for securely attaching said top end of said  
11 spring comprises:

12        a yoke assembly securely holding said top end of said  
13 spring, said yoke assembly being inserted through said  
14 longitudinal opening and securely attached at its bottom to  
15 said inner surface of said side member